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EXAMINER

KILKENNY, TODD J

ART UNIT

PAPER NUMBER

1733

DATE MAILED: 10/01/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/943,789

Applicant(s)

FARELL ET AL.

Examiner

Todd J. Kilkenny

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) 21-36 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 August 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4,5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1 - 20, drawn to a process for bonding a nonwoven web, classified in class 156, subclass 181.
 - II. Claims 21 - 36, drawn to an apparatus, classified in class 156, subclass 582.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions I and II are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case, the apparatus as claimed can be used to practice another and materially different process such as a process that forms a nonwoven web from only polypropylene fibers, that is fibers having a melting temperature higher than 140°C.
3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.
4. During a telephone conversation with Raymond Linker on September 9, 2003 a provisional election was made with traverse to prosecute the invention of Group I,

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claims 1 - 20. Affirmation of this election must be made by applicant in replying to this Office action. Claims 21 - 36 withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Matsuoka et al Rejection

7. Claims 1 - 7, 9 - 15 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuoka et al (US 5,795,651) in view of McHale (WO 90/13423).

Matsuoka et al disclose a process for bonding a nonwoven fabric comprising filament mixture composed of at least polyolefin and polyester. As to comprising a polymer that melts below 140°C, Matsuoka et al suggest polyethylene as the polyolefin and disclose the melting point of the polyethylene to be 132°C (Example 1). Matsuoka

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et al also disclose the filaments of the nonwoven can be partially bonded with heat and pressure using an embossing roll apparatus, such as a thermal embossing apparatus having an engraving roll with a projected pattern and a flat roll (Col. 11, lines 33 – 39; Col. 12, lines 24 – 32). It is also disclosed that when steel rolls are employed, to include a surface coating of fluoroethylene resin. While Matsuoka et al teach an embossing roll having a projected pattern, it isn't positively disclosed that said projected pattern would include a multiplicity of individual raised calender lands that are spaced apart from one another by intervening depressions. However, such an embossing roll would have been obvious to one of ordinary skill in the art at the time of the invention as embossing rolls defined with an outer surface comprising raised lands which are spaced apart from one another by intervening depressions are considered conventional embossing rolls used with nonwovens as evidenced by McHale (Page 3, line 34 – Page 4, line 2), for example, which incorporates by reference teachings that clearly depict conventional embosser rolls having raised land portions.

As to claims 2 and 3, in disclosing to partially bond with an embossing roll, Matsuoka et al suggest a preferred ratio of bonded area to the entire area to be 5% to 30% and the ratio of the sum of the numbers of the bonded area to the area of the minimum repeating unit to be most preferably 30 to 90/cm² (Col. 10, lines 1 – 37). Matsuoka et al also disclose that the projected pattern of the embossing roll can be regulated by the above bonding area ratio and density of the bonding area (Col. 12, lines 24 – 32). As disclosed in Example 19, Matsuoka et al suggest a bonded area of the embossed roll to be 25% and a density of 60/cm².

As to claim 4, it is the examiner's position that one of ordinary skill in the art at the time of the invention would have readily appreciated the hardness at the surface of the coated embossing roll to be greater than 35 on the Rockwell C scale, as the hardness claimed by applicant is considered to encompass nothing more than well known, conventional per se, embossing roll hardness in the nonwoven art.

As to claim 5, as earlier stated, the embossing apparatus of Matsuoka et al is disclosed as comprising a nip between a patterned roll and a flat roll (i.e. anvil roll).

As to claim 6, Matsuoka et al do not positively disclose a continuous coating over the lands and depressions of the embossing roll. However, McHale in teaching a fluoropolymer coating for embossing rolls, suggest constant thickness of the surface coating over the embossing roll (Page 6, line 28 – Page 7, line 17).

As to claims 7 and 9, as disclosed above, Matsuoka et al suggest a nonwoven comprising filaments from at least two different polymers (polyolefin and polyester) arranged in a plexifilamentary structure and which are immiscible with each other.

As to independent claim 10, Matsuoka et al teach all the corresponding claim limitations of claim 1 as addressed above, but fail to disclose a hard tie coating in combination with the fluoropolymer surface coating.

McHale disclose a non-stick embosser roll coating for embossing nonwoven sheets of polyolefin film-fibril elements. The non-stick coating comprises a primer layer from an aqueous suspension of polytetrafluoroethylene containing chromic acid and phosphoric acid and at least one topcoat layer of polytetrafluoroethylene or

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fluoropolymer blend compositions. The primer layer as taught by McHale is recognized as applicant's hard tie coating.

It would have been obvious to one of ordinary skill in the art at the time of the invention to employ the non-stick coating of McHale as the surface coating for the embossing roll of Matsuoka et al for the benefits of the non-stick coating as suggested by McHale (Page 3, lines 12 – 15). The non-stick coating, which comprises a primer layer, is recognized to include a tie coating layer.

As to claim 11, again it is the examiner's position that one of ordinary skill in the art at the time of the invention would have readily appreciated the hardness at the surface of the coated embossing roll as suggested by the references as combined would have been greater than 35 on the Rockwell C scale, as the hardness claimed by applicant is considered to encompass nothing more than well known, conventional per se, embossing roll hardness in the nonwoven art.

As to claim 13 and the additional limitations not required by claim 10, as disclosed above, the embossing apparatus of Matsuoka et al is disclosed as comprising a nip between a patterned roll and a flat roll (i.e. anvil roll). Matsuoka et al also disclose the embossing apparatus provides heat at a temperature not lower than 40°C and not higher than the melting point of the polymer having the lowest melting point among the polymers of the filament network and a nip pressure chosen from a range of 0.5 to 50 kg/cm. As to rotating the anvil roll and embossing roll in opposite directions, such is considered to be the conventional axis rotation in driving a web through a nip formed between two rollers.

As to claims 12 and 14, McHale discloses a primer layer thickness of 5 to 18 micrometers and a topcoat layer thickness 18 to 61 micrometers (Page 5, lines 19 – 21; Page 6, lines 28 – 30).

As to claims 15 and 18, as previously stated, Matsuoka et al suggest a nonwoven comprising filaments from at least two different polymers (polyolefin and polyester) arranged in a plexifilamentary structure and which are immiscible with each other.

Van Gompel et al Rejection

8. Claims 1 – 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Van Gompel et al (US 4,725,473) in view of McHale (WO 90/13423).

Van Gompel et al teach a method of making a composite material including bonding a nonwoven layer of unadhered fibers to a film. The fibers of the nonwoven as suggested by Van Gompel et al may comprise bi-component fibers having a polypropylene core and a polyethylene sheath, wherein the polyethylene sheath is recognized as being a polymer that melts below 140° C. Referring to Figure 5, the nonwoven layer is adhered by a plurality of discrete bond points, which in one embodiment can be provided by an embossing roll provided with a pattern of upstanding projections. Van Gompel et al further disclose that said embossing roll can be heated and the pressure at the nip can be varied to point bond the nonwoven.

As to independent claim 1, Van Gompel et al fail to suggest a surface coating of a fluoropolymer on the embossing roll.

McHale disclose a non-stick embosser roll coating for embossing nonwoven sheets of polyolefin film-fibril elements. The non-stick coating comprises a primer layer from an aqueous suspension of polytetrafluoroethylene containing chromic acid and phosphoric acid and at least one topcoat layer of polytetrafluoroethylene or fluoropolymer blend compositions.

It would have been obvious to one of ordinary skill in the art at the time of the invention to include a fluoropolymer coating as suggested by McHale to the embossing roll of Van Gompel et al so as to obtain the anti-stick, heat transfer and roll life benefits as suggested by McHale (Page 3, lines 12 – 15).

As to claims 2 and 3, Van Gompel et al suggest bond points between about 5% to about 50% of the area and a concentration of bond points defined by the area of each bond point being between 0.05 to 1.5 mm² and the distance between the bond points being between about 0.5 to about 4.0 mm.

As to claims 4 and 11, it is the examiner's position that one of ordinary skill in the art at the time of the invention would have readily appreciated the hardness at the surface of the coated embossing roll as suggested by the references as combined would have been greater than 35 on the Rockwell C scale, as the hardness claimed by applicant is considered to encompass nothing more than well known, conventional per se, embossing roll hardness employed in the nonwoven art

As to claim 5, in reference to the point bonding of the nonwoven to a smooth film as depicted in Figure 5 of Van Gompel et al, one of ordinary skill in the art would readily

appreciate said second roll (26; Figure 6) of Van Gompel et al to be a smooth, hard-surfaced anvil roll.

As to claim 6, in view of McHale's expanded disclosure suggesting constant thickness of the surface coating (Page 6, line 28 – Page 7, line 17), one of ordinary skill in the art would have readily appreciated that the coating is applied to be continuous over the surface of the embossing roll.

As to claims 7 – 9, again Van Gompel et al suggest a nonwoven web comprising sheath-core structured bi-component fibers of polyethylene and polypropylene.

As to independent claim 10, the rejection against claim 1 is applied as provided above, wherein the additional limitations directed to the concentration of lands and percent of surface area are also met as by Van Gompel et al as suggested in regard to dependent claims 2 and 3 above. As to the limitation directed to the a tie coating in addition to a fluoropolymer surface coating, the non-stick coating of McHale includes a primer layer as disclosed above, wherein said primer layer is taken to read on applicant's tie coating.

As to claims 12 and 14, McHale discloses a primer layer thickness of 5 to 18 micrometers and a topcoat layer thickness 18 to 61 micrometers (Page 5, lines 19 – 21; Page 6, lines 28 – 30).

As to independent claim 13, the rejection against claims 1 and 10 is applied as provided above, wherein the limitations directed to the temperature and pressure at the nip are further met by Van Gompel et al, which discloses heating the embossing roll to a temperature between 100° to about 300° F and a pressure at the nip being between 0 to

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80 psi (Col. 5, lines 44 – 61). As to the limitation directed to rotating the anvil roll and the embossing roll in opposite directions, the rotation of rolls defining a nip to which an article is driven through is considered well known, conventional per se, to be such that the rolls rotate in opposite directions. Therefore, one of ordinary skill in the art at the time of the invention would have readily appreciated rotating the embossing roll (46) and the anvil roll (36) in opposite directions.

As to claims 15 – 18, Van Gompel et al suggest a nonwoven web comprising sheath-core structured bi-component fibers of polyethylene sheath and polypropylene core.

As to claim 19, as applied against the above claims, Van Gompel in view of McHale renders obvious a process of bonding a nonwoven as claimed in independent claim 19.

As to claim 20, as applied against claims 10 and 13, McHale's fluoropolymer coating includes a primer layer which reads on applicant's tie coating and McHale suggests providing the dual layer coating to smoothly cover an entire embossing roll outer surface.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Todd J. Kilkenny** whose telephone number is **(703) 305-6386**. The examiner can normally be reached on Mon - Fri (9 - 5).


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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Ball can be reached on (703) 308-2058. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

TJK

TJK


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